Nutrition News

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DIET FATS AND ADULT HEALTH

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Until recently dietary fats seemed to hold more interest for housewives and food producers than for physicians and nutritionists. Apart from patients with diabetes and a few other disorders, the usual dietary advice has been to assure an abundant supply of proteins, minerals and vitamins and to make up the desired total calories with carbohydrates and fats according to personal preference. Many published dietary surveys and recommendations do not mention fats.

Now we are witnessing a rather frantic upsurge of research and debate about fats and their influence on health. It is suspected that the best diet for growing children may not be optimal for the adult. The focal point of interest is the indication that the fats we eat may influence our susceptibility to coronary heart disease, now the greatest killer and threat to health of adults in the United States.

The most important connection between dietary fat and coronary heart disease involves the concentration of cholesterol and cholesterol-bearing lipoproteins in the blood. Both in experiments on man and in studies on populations on different diets, it is found that as the diet becomes richer in fats, the concentration of these substances in the blood tends to increase. It is significant that with increasing concentrations of serum cholesterol, the tendency towards atherosclerosis and coronary heart disease increases. This is found clinically, experimentally, and in population studies.

Individuals vary, but observations on large population samples show no exception, so far, to the rule that coronary heart disease is relatively rare in populations characterized by low cholesterol values. Such peoples, who make up a large part of the world's total in Asia, Africa, the Mediterranean area and much of Latin America, generally subsist on low-fat diets. Within these populations there are sub-groups who eat more fat. They tend to have higher cholesterol values and greater incidence of coronary heart disease. Japanese, Negroes, and Italians, who are relatively free from the coronary problem in their countries of origin, are not immune when they live in the United States on a typical modern high-fat diet.

In addition to an effect in promoting cholesterol formation and hence atherosclerosis, dietary fat may contribute to coronary heart disease by enhancing the tendency of blood to clot in the vessels. Coronary heart attacks usually involve an atherosclerotic artery in which a thrombus or blood clot is formed. Anything that tends to make blood clot more readily is a hazard in this regard. Recently it has been found that high-fat meals tend to make the blood clot unusually fast in the two to six hours after the meal. Non-fat meals do not.

Not all fats are equivalent in regard to their effect on serum cholesterol, in short-time experiments. It is inferred that fats differ also in their tendency to promote atherosclerosis. Unfortunately, animal species differ in cholesterol and fat metabolism. The data of genuine relevance to man must come from studies on man. These are difficult and costly. At present, however, it appears that fats containing the more fully saturated fatty acids tend to be more cholesterogenic in man than those made up of unsaturated fatty acids. Hard fats are more suspect than fluid oils. The "essential" fatty acids, linoleic and arachidonic, probably have a different effect than such fatty acids as palmitic and stearic.

Precise relationships between the various food fats and cholesterogenesis are far from clear. The possibility that different food fats vary in their influence in atherogenesis in man is yet to be studied. Finally, the apparent differences between the fatty acids in regard to cholesterogenesis do not seem to be reflected in the effects of various food fats and oils on blood coagulation. This all means that as yet there is no real information about whether the kind of fats in the diet influences the utimate development of coronary heart disease.

Dr. Keys Dr. White

Obviously much more research is needed before it will be possible to devise optimal diets for the prevention and treatment of coronary heart disease. The facts now at hand show that the diet fats are important. We must consider what, if any, modifications in our adult diet may be desirable for the future. We must ask whether some of the changes that have taken place in the American diet, without benefit of nutritional consideration, may not be deleterious. During the past forty years, the proportion of fat in the American diet has been steadily rising, and there have been changes in the kinds of fats we use. These facts add up to a problem of nutrition second to none in contemporary importance.

Our traditional high quality foods—milk, meat, fish, poultry and eggs—contain fat, so the dietetic problem is to reduce our fat intake and still obtain the nutritional virtues of the foods which provide first-class protein, and essential vitamins and minerals.

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Glances AT NUTRITION RESEARCH

Research continues around the world to determine what, it any, dietary excess or deficiency contributes to death from arteriosclerotic and coronary heart disease among middle-aged men and women living in well-developed countries.

Dietary fats and serum cholesterol—Dietary fats differ in effect on serum cholesterol levels when fed to human subjects for 7 to 10 day periods. When fats containing high levels of unsaturated fatty acids were fed, serum cholesterol levels fell. This effect was intensified when the fat was fractionated and only the highly unsaturated fraction was fed. But, when this fraction was hydrogenated, the effect was reversed. Fats containing high levels of saturated fatty acids, naturally or as a result of hydrogenation, caused higher levels of serum cholesterol. Differences in serum cholesterol after 100 grams daily of different fats varied as much as 100 mg. per 100 ml. of blood serum.

—Lancet 270:521 (April 28) 1956.

Calorie and fat restriction—Obese subjects responded to calorie restriction with a drop in serum cholesterol. On 1200 calories daily, serum cholesterol was reduced 17% when fat provided 58% of the calories. On the same calorie intake, serum cholesterol was reduced 28% when fat contributed 18% of the calories. Thus, it appears that calorie and fat restriction have independent effects on serum cholesterol levels.

—Fed. Proceedings 15:542 (March) 1956.

Race and heart disease—Negro females were found to suffer myocardial infarction at an age about 10 years younger than white females, 6 years younger than white males, and 4½ years younger than negro males. In 519 cases of proved myocardial infarction, 233 patients were white and 286 were negro. Highest mortality occured among the negro females.

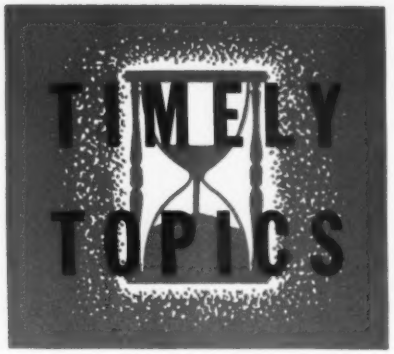
—Circulation 13:712 (May) 1956.

Role of essential fatty acids—Evidence that essential fatty acids function in the transport of cholesterol by the body has recently been reported. Essential fatty acid deficiency symptoms develop faster in rats and rabbits fed deficient diets under conditions which cause high levels of serum cholesterol: as making animals 1) diabetic with alloxan; 2) hypothyroid with thiouracil; or 3) feeding 1% cholesterol.

—Fed. Proceedings 15:326 (March) 1956.

Lipids and human atherosclerosis—No consistent or significant relationship has been found between serum levels of total cholesterol or of lipoproteins and the progression of the human atherosclerotic process. These findings are reported from an evaluation of the degree of atherosclerosis found at autopsy of 50 patients whose serum lipids were determined serially during life.

—Circulation 13:224 (Feb.) 1956.



Dr. Keys

Dr. Keys' interests and services in health and nutrition are world-wide. In addition to his position at the University of Minnesota, he is chairman of the United Nations Food and Agriculture Committee on Calories and serves on WHO and UNESCO committees dealing with diet and health. Dr. Keys also serves on the Board of Directors of American Heart Association, Minnesota Heart Association, American Society for the Study of Arteriosclerosis, and on Research Committees of American Heart Association and International Society of Cardiology.

Dr. White

Dr. White long has been the acknowledged dean of American cardiologists. He is executive director of the National Advisory Heart Council, president of the International Society of Cardiology, and chairman of its Research Committee. He is author of textbooks on heart disease, coronary heart disease in particular. Dr. White and Dr. Keys have collaborated in research on diet and heart disease in Italy, Sardinia, Hawaii, Japan and currently, in Finland.

More Milk For Children

There will be an extra health dividend this year for the nation's children under an expanded Special Milk Program. For the first time, the program allows for the participation of any nonprofit child care center, nursery school, summer camp, settlement house, or any nonprofit group devoted to the care and training of children, up to and including high school age.

GROUP WEIGHT CONTROL PROGRAMS . . . WHAT DO THEY ACCOMPLISH?

By Ann Liggett, Home Economics Extension Service, and Helen Clark, Foods and Nutrition Department, Purdue University

Ann Liggett *

Since 1954, a concerted statewide attack on the problem of overweight has been sponsored by the Indiana Heart Foundation, State Board of Health, and Purdue Extension Service. With organized groups of voluntary subjects participating in many Indiana counties, a study of what is being accomplished became a challenge.

Nutrition information is an integral part of the group programs, under the leadership of an extension specialist in foods and nutrition, Miriam Eads. In six meetings, basic facts and principles of nutrition are stressed and participants helped to understand why they are overweight and how to reduce safely. The leader assists in the planning of menus at about 1200, 1400, and 1800 calories. She suggests ways to adapt family menus to individual needs and to maintain desired weight, after achieved. How lasting are the benefits?

Many people who reduce successfully while participating actively in a group program, later regain some, if not all, of their weight loss. To obtain information concerning the progress of individuals who volunteered for the program, three representative counties in different parts of the state were selected for a follow-up study 12 months after the group programs were initiated in these counties.

All 243 women and 7 men who regularly attended the classes wanted to lose weight. Most of them enrolled because they wished to improve appearance, health, or both. While three-fourths of them were between 30 and 59 years old, individual ages ranged from 12 to 70 years. Both rural and urban homes were represented.

Half of the participants needed to lose from 10 to 29 pounds, one-fifth 30 to 39 pounds, and one-fifth from 40 to 59 pounds, others from 60 to 100 pounds. No one was advised to reduce more than 50 pounds within a year.

During the 12 month period, 64 per cent of the subjects lost from 1 to 19 pounds and 13 per cent between 20 and 49 pounds. On the other hand, 15 per cent maintained their original weight and 8 per cent gained. As one might expect, those who needed to make the smallest losses were most successful. Some who were quite heavy made little or no progress. For example, of eighteen who hoped to lose 50 pounds during the year, four lost from 20 to 41 pounds, eight lost from 6 to 15 pounds, four held their initial weight and three gained from 10 to 30 pounds.

The volunteers felt that the practical information on how to control weight and the opportunity to be part of a group having the same problem were the most valuable parts of the classes. The two difficulties reported most often were: 1) a tendency to remain at a certain weight after an initial loss; 2) staying consistently on a low calorie diet. Exercise was another problem.

Since attention was directed toward good food selection as well as weight control, information was sought on dietary practices of the subjects at the end of the year. The returned questionnaires did not provide all desired facts, but many women reported that they were planning meals more carefully and eating better breakfasts. The two outstanding dietary changes were reduction in the amount of food eaten at each meal and lower intake of fat, apparently in a number of cases serving fewer fried foods. These changes were reported by many regardless of their success in losing weight.

While group weight control programs cannot be expected to be 100 percent effective, they do bring about a considerable measure of progress. An extensive revision of tastes in foods and of dietary practices is usually needed, as well as perseverance, if the person is decidedly overweight.

This evaluation survey points up the need for better understanding and application of nutrition by people, in terms of the kinds and quantities of foods that are eaten regularly. It also reemphasizes the importance of developing in childhood, food and living habits that maintain desirable weight.

* Ann Liggett made the study for a Master's thesis, under the direction of Helen Clark. The overall plan of the Indiana weight control program was described by T. A. Kleckner, executive director of the Heart Foundation, in Nutrition News, Oct. 1955.

TEACHING NUTRITION FOR CARDIAC PATIENTS

By Margaret Hessler Brookes, Ph.D.

Consultant in Nutrition and Home Economics, The Chicago Heart Association

Instruction in nutrition for all persons with heart disease in the Chicago area certainly would be teaching on a large scale. Many patients, of course, have detailed guidance from physicians and dietitians, but many want help in following orders. The Chicago Heart Association, whose educational policies are determined by its medical group, naturally does not have a single voice in dietary guidance of cardiac patients. The diet orders coming from individual physicians may include at least one of these diverse directions: lose weight; eat no salt; reduce fats; eat plenty of protein; be sure to get an adequate, well-balanced diet.

A nutrition consultant joined the staff of the Chicago Heart Association in 1953. Obviously she cannot prescribe diets nor answer such questions as, "My doctor says I have heart disease. What should I eat?" She can, however, assist with individual problems as well as work with groups of patients or with the people in charge of feeding these patients. Many questions can be answered by telephone. Use can be made of approved printed materials.

The special nutrition activities of the Chicago Heart Association were initiated by a professional member, concerned with lightening, for physicians and patients, problems in using a low salt diet. Aid to doctors and dietitians took the form of a booklet listing processed salt-free foods and their sources in Chicago. Aid to patients was offered by a series of four demonstrations on preparation of low-sodium foods without added salt. The tasting periods proved these foods could be flavorful. While the food cooked, the audience heard a brief, pertinent nutrition talk and took part in an informal discussion of their problems.

This series has continued annually. The mimeographed recipes, distributed

(Continued on Page Four)

—that Congress voted another $17 million this year for school-lunch aid, bringing the total to about $100 million?

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—that fluid milk consumption hit an all time high in 1955 with a per capita consumption of 140 quarts?

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—that if one really "ate like a bird" he would eat, proportionately, eight tons of food, rather than the 1,300 pounds estimated as the average consumption per person per year, and doesn't this fact argue for more activity as one factor in control of obesity?

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—that the cost of tooth decay in the United States is some $1.5 billion a year, indicating the need for much additional research directed to overcoming this problem?

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—that the production of one pound of cheese requires about ten pounds of milk?

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—that dairy cows are now "nose printed" for positive identification just as human beings are fingerprinted?

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—that, according to U.S. Public Health Service, the "average" housewife each year walks as far as from Boston to San Francisco, 3,190 miles, without leaving her house, and might this add to the puzzle of who is "average," in view of obesity records?

THINGS YOU'LL LIKE TO READ

Geriatric Medicine—3rd ed. Edward J. Stieglitz, M.D. editor. J. B. Lippincott and Co., Philadelphia. 1954. $15.

Twenty-eight authorities combine their experiences in this treatise on medical care of the aged patient. Information is given on care and guidance in normal aging; in anticipating, preventing, and if need be correcting disorders of later maturity. Chapters on mental hygiene and geriatric nursing have been included. Many case histories show the advances made in clinical medicine and nutritional therapy. Here is factual material to help those concerned professionally or administratively with geriatric groups, in prolonging life, enthusiasm, and usefulness.

Nutrition for Practical Nurses—Phyllis S. Howe. W. B. Saunders Co., Philadelphia. 1955. $2.50.

This nutrition manual is designed as a text for practical nurses. Managers of nursing or convalescent homes, with limited nutritional backgrounds, will also find the book useful. Normal nutrition is stressed as the framework for diet therapy. Therapeutic diets are briefly covered as to types and respective food products allowed. The reader is advised never to prescribe diets but to follow the advice of the physician. The last section of the text concisely covers sanitation and food handling; food selection and basic principles of cookery.

TEACHING NUTRITION FOR CARDIAC PATIENTS

(Continued from Page Three)

at the meetings, are available throughout the year.

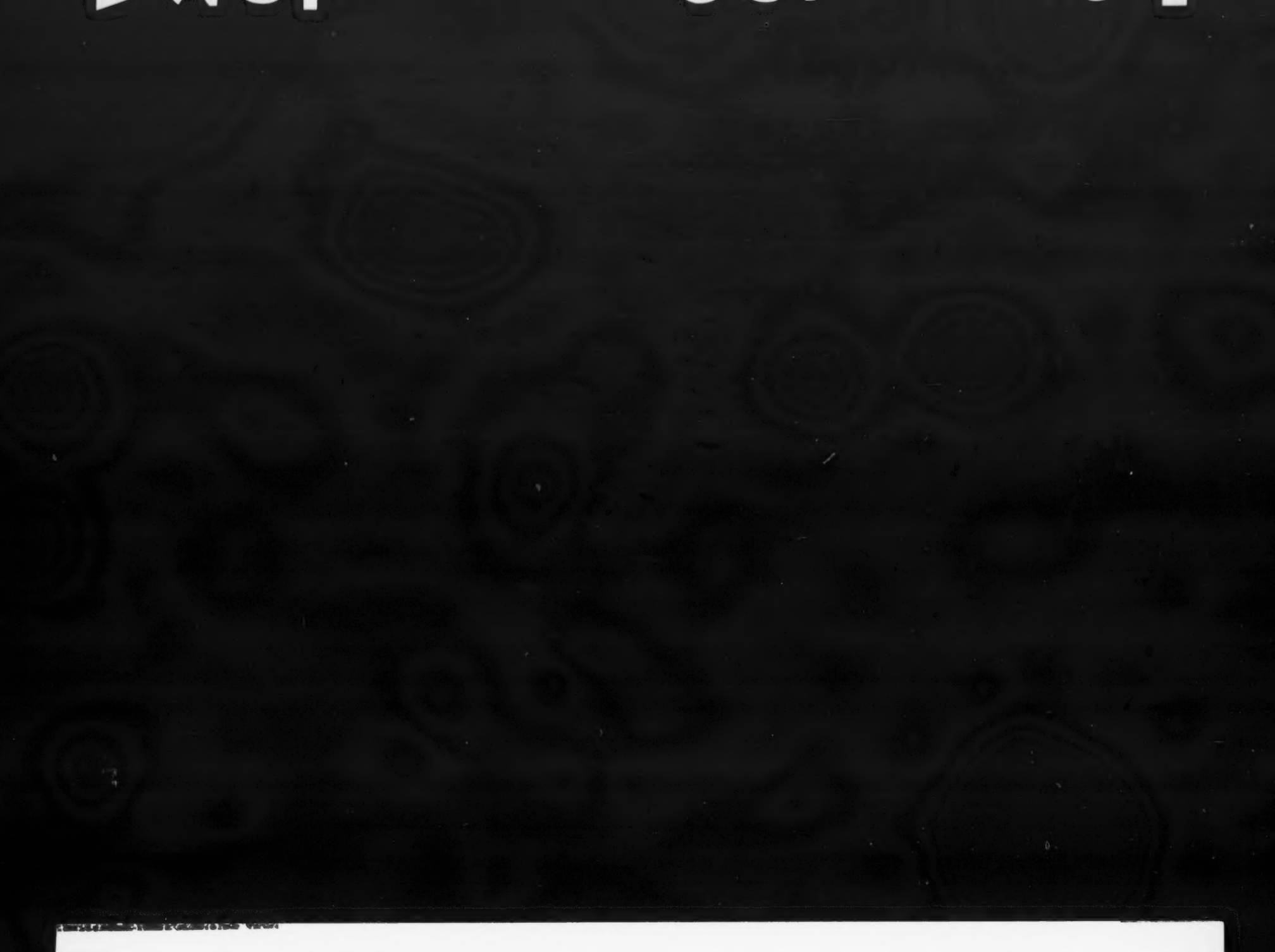
In 1956, the demonstrations have emphasized low calorie recipes. They did not attempt to include diet plans. Calories in recipes were cut by reduction of fat though not its omission, or sometimes by the use of artificial sweeteners. An evaluation questionnaire brought answers such as this, "I tried the recipes, they were good, and I have lost weight."

The large area and population to be served is balanced by many resources in Chicago: the Gas Company's auditorium for demonstrations; cooperation of professional groups — Home Economics in Business, Nutrition Association, and the Dietetics Association.

Our own public relations facilities alert patients to the demonstrations by press, radio, and TV. A feature article in a Sunday paper with pictures and sample recipes has attracted attention.

Physician members of the Heart Association receive notices and tickets in advance. The Chicago Medical Journal reaches others. Patients must secure a referral through their physicians.

Managers of nursing homes had been invited until 1955, when a one-day work-shop for them was held. Sponsored by our newly appointed Nutrition Committee, it drew requests for regional series of nutrition workshops for managers and cooks of nursing homes. Two were held in the spring of 1956. Each series of three programs included menu planning, emotions related to food, sanitation, therapeutic diets, and preparation of low cost suppers. An abridged bibliography and pamphlets were offered. Nutritionists, dietitians, and social workers cooperated. The informal discussion meetings, exchange of experiences at a social hour, and the variety of nursing homes and hospitals in which the meetings were held, proved valuable parts of this workshop experience.

From the group activities and their publicity, come individual questions by phone, letter, or in person. We usually ask first, "What did your doctor tell you to eat?" Perhaps we must end with, "Ask your doctor," but in between, the inquirers often answer their own questions. Perhaps they are answered by supplying the food list required by their physicians' orders for their diets, or "those really good recipes planned for diets such as mine." We couldn't tell one questioner how to "curve" her appetite, as she asked, but we encouraged her to make the effort.

In these various ways the Chicago Heart Association contributes to nutrition education of cardiac patients. The program serves their doctors as well.